

# PHILADELPHIA MEDICAL TIMES.

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## ORIGINAL LECTURES.

### INTRODUCTORY AT PENNSYLVANIA HOSPITAL ON BONWILL'S METHOD OF INDUCING ANÆSTHESIA.

BY ADDINELL HEWSON, M.D.

Reported, with further notes, by Dr. T. HEWSON BRADFORD, Resident Surgeon.

GENTLEMEN,—I am always tempted at my first clinical lecture to take up some preliminary matters, although I know at the time that you are all advanced in your studies of surgery.

This feeling with me arises naturally from three circumstances. First, I am a stranger to you, unacquainted with the stand-points from which you have been made familiar with the patients in my wards, and might readily waste much of your time in going over matter discussed by my predecessor. Then, secondly, the patients in the wards which I have just taken charge of are all strangers to me, and I have had but a very short time to make myself acquainted with their conditions and their histories. Thirdly, and finally, I am a stranger to the patients themselves, and I can always at the beginning of my course recognize the effects of this in aggravating the difficulties of making correct diagnoses. Who is it that does not fear falling into a surgeon's hands for treatment? The very term of surgeon or surgery relates, by its derivation, to being handled, or treated by manipulations; and if the surgeon into whose hands the patient falls is a stranger, that very fact must increase that dread, as well as keep it up until better acquaintance gives assurance of kindly treatment. Rough handling is not, as most people suppose, an essential quality of a surgeon; on the contrary, as I would have you believe, it is sadly in his way, is often a great obstacle to his getting at the truth in his cases. It will make them prevaricate, or suppress the truth, and so keep him in ignorance of much that is important for him to know. The discovery of anæsthetics is the greatest boon to mankind in destroying the fear of surgical operations.

The use of ether, chloroform, and the like has disarmed surgery of the greatest

of its terrors; but such measures are not to be resorted to in the embarrassments to which I am now referring. What we want here are measures to diminish emotional dread, and to allay or diminish the sensitiveness of a part, so that patients can be handled or examined with as much force as may be necessary to detect all the phenomena in their cases. In the most serious cases, for manipulative examinations or procedures we have not heretofore hesitated to use ether and chloroform, but even in many of them we should feel that we were yet in want of the *desideratum*,—some means to be used readily without rest, inconvenience, or annoyance. This I believe I have really to show you here to-day, in Dr. W. G. A. Bonwill's method of diminishing or allaying sensibility by rapid respirations.

Dr. Bonwill is well known as the inventor of the electric mallet.

You have all of you, I have no doubt, experienced the effects of rapid and deep respirations after violent running, or of blowing hard to ignite a fire,—especially the confusion of sight and bewilderment of mind. These Dr. Bonwill recognized many years ago, associated with numbness of sentient nerves, as dependent on the rapidity of the respirations. Pursuing the subject, he has brought it to practical use in his profession,—that of dentistry,—in which he uses it constantly to diminish the sensitiveness of dentine, and even to produce such insensibility as to allow of the extraction of a molar tooth without pain. Of the latter I have had a demonstration in my own family, which has led me to the study of the subject myself, and this with the most gratifying results. I have used it in stitching wounds, in handling over-sensitive parts, and in probings and the like. The surgeon's probe, the earliest of his aids in exploring his cases, is an object of special dread to his patients, and so constantly is it resorted to that even well-informed people forget or are ignorant of its purpose. We have had in the last few days a demonstration of the latter in the charge of a judge in a case of shooting, where he spoke of "probing as a method of *treatment* in gunshot-wounds of the head." Now, nothing could be more absurd than such a representation of the use of probing. The use of the probe is to detect the presence of a foreign object in a wound or ulcer, to deter-

mine certain conditions; but it has nothing to do with them, and is not used for the after-treatment. The solid metallic character of this instrument elicits, when its end is brought in contact with a hard substance, peculiar sensations, which, to an educated touch, will designate with great accuracy the character of such a substance, and its relations with the parts where it is concealed. The phenomena as regards the latter point will be very much intensified by using in addition the "sounding-board," devised, as you know, for increasing the value of the sounding in exploring the bladder.

The slightest contact of the probe held by this sounding-board will not only show you that the substance it is touching is hard and is free or firmly fixed, but will also give you a clear idea of the amount of its hardness, and even of its size. This, as you see, I can demonstrate to the whole of this large class by touching various articles on the table before me with the instrument so guarded. Now, I wish to make some actual demonstrations of the kind on two boys who have been sufferers for a long time with diseased bone. In both these cases I had a most gratifying demonstration of Dr. Bonwill's method a few days ago, when I first came to examine them with the probe. The first case is a bright little fellow, who looks at me very cheerfully today, and in this respect is very different from what he was at the beginning of our interview some days ago: he then dreaded the probing. He is a boy who has gone through a good deal of suffering. You will remember his having been before in the clinic on more than one occasion. The following memoranda of his case are worthy of my recalling to your minds:

He was admitted on the 12th of January. A year ago he fractured his tibia in its shaft and at its malleolus, by falling down-stairs. He was treated for the injuries, but in about six months an abscess formed, which was lanced. It was then found that there was extensive periostitis. The limb, after this, was constantly breaking out, and giving the child great annoyance.

On admission, the patient looked well, was well nourished; the right leg was much swollen, and red, with two fistulous tracks leading to diseased bone, and from which exuded a whitish, semi-purulent discharge. The leg was poulticed, and the

patient ordered *ol. morrhue cum calcis lacto-phosp.*, 3ss, t. d.

On the 15th of January he was brought before the class, and, after he was thoroughly etherized, Dr. Morton made a free incision about three inches in length down to the bone, which he found in a necrotic condition. He removed a considerable portion of this by a chisel. He then used a trephine, and bored through to the medullary canal, where he found two spiculæ of dead bone, which had apparently been the whole cause of the trouble. He removed these and all the rest of dead bone that was free. The wound was filled with charpie saturated with carbolized oil, and bandaged from the toes up.

This same kind of dressing has been continued, with very satisfactory results. The wound is filled with healthy granulations; but there is a fistulous opening high up near the knee, and some distance from the wound, evidently communicating with dead bone. This I explored the other day with the simple probe while the patient was breathing with great rapidity, and I detected a small and free piece of dead bone, without causing him any pain. To-day I will make the exploration, under the same circumstances, with a probe armed with a sounding-board.

The patient, being on the operating-table, was directed by Dr. Hewson, who was holding the board and probe in his hand, to breathe rapidly. He did so for only a few seconds, and then ceased, and directed his eyes to the instrument. He was told he was not going to be hurt.

He would not, however, continue deep inspirations anything like long enough (Dr. H. stated that it required fully three minutes, according to his experience). The boy then grew nervous, and began to cry, refusing to breathe at all with any exertion. The doctor then left him on the table and turned to the other case.

This was a lad 16 years old, who had been admitted on the 25th of January, for necrosis of the foot. Three years since, he was tramped upon by a horse, injuring the left foot. With attention and rest he soon regained the use of this foot. But three months ago the same kind of accident befell the same foot, doing it a great deal of damage. It is now much swollen, with numerous sinuses, abundant discharge, and great sensitiveness.

The probing at the time of his admission was very painful. When Dr. Hewson examined him on the 3d instant with the probe, after he had been breathing rapidly for about five minutes, he did not evince any pain whatever. He was therefore thought to be likewise a good subject for demonstration to-day. He could not, however, be induced to breathe as was necessary.

The want of success in these two cases was evidently due to great emotional excitement, possibly from dread of the introduction of the sounding-board. The first boy had special dread of being etherized. The writer of this report then volunteered to try the process before the class. It was his first attempt, and was made sitting erect, with his right hand resting upon a table. Breathing rapidly (for about three minutes) was attended first with a tingling sensation of the surface, especially of the fingers, and a feeling as though the surface was all swelling. Then there followed a dizziness or confusion in the head, with consciousness well preserved, but with a feeling of inability to resist or act in an independent way. He remembered well being frequently asked by the doctor if he was hurting him, but had no recollection afterwards of the pin sticking him, much less of its having been firmly imbedded in his flesh, as he found it when he had ceased the rapid respirations and the anæsthetic effect had passed off.

Some cases of interest, as showing important points in diagnosis, were after this brought before the class, and the rest of the hour was occupied in their discussion. After dismissing the class, Dr. Hewson went with the writer to the receiving ward, where they found waiting a boy who had fallen upon the ice an hour previously and had sustained a severe injury to his left wrist. He was evidently suffering, and in great dread of being hurt, and the doctor directed him at once to try the rapid respirations. This, in two minutes and a half by the watch, showed some dizziness in the boy's head,—when the doctor picked up the limb and moved it about with the utmost freedom, diagnosing a bad sprain of the wrist, and the absence of fracture. When the boy was recovering, he took to crying, on account, he said, of the dizziness and confusion he had experienced. Nothing could have been more satisfactory than this case in its results. He said

positively *he was not* suffering any pain, the limb having been put in the easiest position possible.

## ORIGINAL COMMUNICATIONS.

### CLINICAL OBSERVATIONS ON THE RELIEF OF PAIN IN ACUTE AFFECTIONS OF THE EAR.

*Read before the Philadelphia County Medical Society, November 24, 1875,*

BY LAURENCE TURNBULL, M.D.,  
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**I**N the author's manual, and in every work on diseases of the ear which he has examined, the subject of relief to pain in acute affections has not been dwelt upon with as much earnestness as the importance of the subject demands.

The fear of pain, in many highly-organized and sensitive natures, is dreadful, causing, by its impression upon the nervous system, spasms, convulsions, and even death. It is told of Desault, the French surgeon, that on one occasion, just as he was about to perform lithotomy, he traced with his finger a line on the skin of the patient. The man shrieked and fell dead. A similar result occurred when Chopart was about to perform a simple operation. Another death occurred in the practice of an English surgeon, a Mr. Stanley. Again, the shock of the pain of labor has even caused death.

As early as 1859\* I recommended the use of anæsthetics in all severe operations on the ear (of young children: with them chloroform can be used with safety). The nervous system of children, as we all well know, is much more impressible than that of the adult.

In the death and removal of living insects, larvæ, etc., from the ears, a great advantage will be gained in the use of the following mixture,—a saturated solution of tannic acid in glycerin containing a small portion of chloroform and morphine.

In no affection of the ear is the use of morphine more satisfactory than in acute purulent otitis media, or in inflammation of the lining mucous membrane of the mastoid process. Patients suffering from such acute affections will bear large doses of morphine with the best results. A few

\* Defects of Sight and Hearing, by T. Wharton Jones, 1859, p. 177.

illustrations, drawn from a large number, will make the matter plain to any who are interested.

*Case I.*—During the unusually cold winter of 1873, I was called in consultation with Dr. C. F. W., of this city. The patient was a young man, aged 25, who, after dancing, came out of the room very much heated. He was thinly clad, and stood near an open window. The day following he was attacked with a severe cold in his head and throat, which gradually extended up the Eustachian tube to the middle ear and posterior surface of the membrana tympani. The inflammation increased, and was soon followed by a chill, indicating, with the pain in the ear, the formation of pus in the tympanum. His sufferings were intense, notwithstanding the free use of opium by the mouth, leeching and blistering behind the ear, and the employment of hot fomentations of narcotic leaves.

When I examined the parts, the auditory canal was swollen and sensitive, and a small point of ulceration of the membrana tympani was discovered, but the opening was too small to allow the pus to flow freely. This being enlarged relieved his pain and distressing tinnitus in a slight degree. With the attending physician's consent, I introduced into his arm a hypodermic injection of half a grain of sulphate of morphia in solution, which soon relieved his pain, so that in half an hour he was able to sleep, which he had not been able to do for many hours.\* On the following day the patient was so much relieved that a solution of nitrate of silver, twenty grains to the ounce of water, was applied to the edge of the membrane by means of a brush and the aid of the forehead-mirror and ear-speculum, being neutralized by a solution of common salt. This was followed by a milder solution

soon after. Ultimately, an astringent solution of sulphate of zinc was employed, washing the parts clean with warm water, by means of Clarke's douche, and the daily use of Politzer's air-douche, to keep the Eustachian tube free from pus or mucus. The membrana tympani soon healed, and there was but a slight impairment of the hearing, with no return of the disease.

*Case II.*—A distinguished lawyer of this city, who was under the care of a physician who had failed in relieving the pain in a case similar to the last, from a too conservative idea concerning the amount of morphine necessary to cause sleep.

The patient was of a highly nervous organization, with an extremely active mind and an extensive and responsible practice. His sole desire was to get to court, which his physician allowed him to do; and when he attempted to state his case, a question was put to him by the judge, which he was unable to hear, and he had to give up under great embarrassment. A day or two after, a medical friend called to see him, to whom he expressed his disappointment and distress. His friend tried his hearing, and found him very deaf and in pain. His friend advised him to talk with his physician, and have a consultation, and I was sent for. I found him suffering from an acute inflammation of the tympanum, with a perforation of his right membrana tympani, accompanied with a discharge of pus. He required to be spoken to in a very loud tone, and was unable to hear a whisper, or even ordinary conversation.

I at once ordered full doses of morphine, with a mild stimulant and nourishing diet. The morphine was to be repeated until he slept.

On the following day his expression was entirely changed, and he was very much relieved.

The same treatment was followed as in the first case reported, and in the course of a few days he recovered from his acute attack, and by care and the use of tonics, local applications of mild astringents, the perforation healed. His hearing was much improved, and he was soon able to resume his place at the bar.

During the summer of 1874, I met him while on a visit to the sea-shore, when he informed me that he heard as well as he did before his attack.

*Case III.*—T. H., aged 19, a young gentleman from the West, of a scrofulous

\* In some rare cases morphine is not suited to the constitution, and a recent authority (H. C. Wood's *Therapeutics*, p. 195) states that "I have seen most alarming results from the injection of a sixth of a grain, and half a grain has produced death." And yet an equally good authority (Prof. Austin Flint, "Essays on Conservative Medicine," Philadelphia, H. C. Lea, 1874, p. 29) has written, "The wonderful tolerance of the human system to the use of opium in certain diseases is a recent discovery, and the practitioner of the present day will venture, in extreme cases, to administer one hundred grains of opium per day, in a case of peritonitis, or grain doses of sulphate of morphia, hourly continued, in a bad case of dysentery." In a case of neuralgia reported by Dr. Joseph Parrish ("The Probe," No. 7, pp. 7, 8, Philadelphia, 1859), the patient began with the eighth of a grain, the usual dose, and increased the dose until he was taking five grains per day. In another case, the notes of which were sent to me in a private letter, the man took, hypodermically, from thirty to forty grains daily. Both cases recovered from the habit.



diathesis, doing business in Philadelphia. He was called to New York, and while there contracted a severe influenza. Being pressed for time, and unwilling to be laid up, he continued to attend to his business; when on using his handkerchief in blowing his nose, he felt something crack in his ear, which gave him acute pain each time that he repeated the act.

On his return he consulted me, and I found he was deaf to certain words, and there was a perforation in the inferior quadrant of his membrana tympani, having ragged and irregular edges.

A solution of nitrate of silver was applied to it, and an artificial membrana tympani, in the form of a pledget of cotton attached to a string, and he was directed to remain in his room and to cleanse the ulcer by employing Clarke's douche. He was also directed to take a tonic of quinine, with nourishing diet.

He was cautioned, owing to his delicate organization, against exposing himself, lest an extension of the disease might involve the mastoid cells and even the brain.

At the time of this caution a slight tenderness on pressure was discovered over the mastoid process.

This advice he made light of, and still went out during the day, the weather being cold and disagreeable.

A few nights after, I was summoned to his boarding-house in great haste, and found him walking up and down his room, his countenance expressive of great suffering.

He stated that he had had a chill, followed by intense pain in his ear and head. He urged me at once to give him instant relief, no matter what the consequences might be. He had taken large doses of laudanum, chloroform, etc., but with no relief. I introduced into his arm half a grain of sulphate of morphia hypodermically, and made a free incision down to the periosteum of the mastoid process while he was under the influence of the drug. This injection was followed by five-grain doses of sulphate of quinine dissolved in whisky every three hours, until it produced its physiological effects.

That night he was so much relieved that by the next day he was able to come to my office, although much against my advice. He was directed to continue the morphia, if he had pain, in reduced doses, and to keep up the quinine.

In a few days he returned to his business.

This patient had occasional returns of his pain, but none of the same severity as the first while he remained under my care during his stay in this city.

It may be well to say a few words on the subject of pathology.

In a purulent inflammation of the ear of one year's duration, death followed, when there were found polypus and caries of the labyrinth wall of the tympanic cavity, which had resulted in a fistulous communication through that wall just above the fenestra ovalis, allowing the purulent matter to pass into the vestibule and semicircular canals, and thence through the internal cribriform plate along the meatus internus to the brain. In another case there were found abscesses in the brain,—one on the side of the diseased ear, and one on the opposite side; the lateral ventricle on that side being filled with purulent matter.

In another case, where the mastoid process was affected, this led to perforation of the roof of the tympanic cavity, phlebitis of the vena mastoidea, and transverse sinus with metastasis in the lungs.

I do not wish to occupy too much of your time, so shall give but another case, showing how rapidly grave results may follow from caries of the temporal bone,—the result of neglected otorrhœa.

The patient, a woman, prior to her fatal illness enjoyed good health, with the exception of an occasional slight otorrhœa never examined; her age was forty; she (on exposure) took cold in the ear and became suddenly excited, violent headache set in, and in two days she became comatose, and never rallied.

After death, appearances similar to those in fatal cases of cerebro-spinal arachnitis were found, while the entire petrous portion of the temporal bone was softened and dead. Those who wish to investigate the subject will find at p. 2029 of the author's manual the post-mortem of nineteen cases reported.

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ACCORDING to an analysis of I. H. Salls, Winslow's Soothing Syrup contains 0.28 grain of opium to a fluidounce of syrup.

In Austria, the compulsory use of the decimal weights and measures in prescribing and compounding commenced with January 1, 1876.

## CHLOROFORM AND THE PUPIL.

BY W. H. WINSLOW, PH.D., M.D.,

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**A**NÆSTHETICS may be justly ranked as the most valuable contribution made to medicine within the century, and, as Americans, we may be proud of our share in a discovery which has robbed surgical practice of its horrors, and proved of inestimable value to mankind.

Chloroform, ether, and nitrous oxide gas have been the only agents relied upon to any extent for the production of anæsthesia, and the latter has been used almost exclusively by dentists to produce the fugacious insensibility required for the extraction of teeth.

Chloroform and ether have been administered by the physicians of the United States very generally; the individuals being influenced towards one or the other according to the preference of their preceptors or the teachings of their schools, though sectionalism has also influenced the choice somewhat.

Ether, as an American discovery, has been looked upon with most favor, and, as its reliability and innocuousness have been contrasted with the increasing statistics of deaths from chloroform, our predisposition to its use has been strengthened, so that now there are very few prominent men who dare to defy public opinion and coroners' juries by using chloroform.

On the other hand, the application of chloroform as an anæsthetic having been discovered in Great Britain, it has had an extensive use abroad, both insular and continental; and as European teaching influences medical opinions in many less-favored countries, the extent to which this agent is and has been used must be enormous. The English, with their accustomed prejudice against everything American, persist in ignoring the advantages which ether presents, though sudden deaths from chloroform are of frightful frequency.

A partisanship thus exists in reference to these agents, which, by stimulating observation and experimental research, cannot fail to determine their comparative value. Already the superior claims of ether are winning adherents among those who examine the evidence critically, and the day approaches when chloroform will be abandoned and to us will be given the glory of discovery of the only safe anæsthetic.

The symptoms of anæsthesia from ether and chloroform are strikingly similar; and it would be of great value to determine some sign, beyond failure of respiration or pulse, which would indicate danger.

Dr. Budin, director of Vulpian's laboratory at Paris, assisted by M. Coyne and others, made a series of observations on chloroform-anæsthesia in dogs and men, which were published in *Le Progrès Médical* of September 5, 1874, under the title "De l'Etat de la Pupille pendant l'Anæsthésie chirurgicale produit par le Chloroforme, etc." I present a synopsis of the paper: "The chloroform was given upon a handkerchief, at a little distance from the nose, so that the air mingled freely with it. A constant relation between the degree of anæsthesia and the size of the pupil was noted. During excitation the pupil became insensible to light and dilated greatly, but cutaneous sensibility remained. This period was sometimes very short. Then the pupil contracted slowly, but would dilate when the subject was pinched. After five or six minutes' administration, the pupil attained a very small size, which was denominated *atresie*. Irritants at this stage produced no effect upon the pupil; it remained immovable. This was the stage for operations. The pupil must be kept in atresia by the chloroform, and could be maintained thus for two or three hours without danger. If the anæsthetic was withdrawn, the pupil dilated and sensibility returned.

"During profound anæsthesia the sciatic nerve of a dog was cut, and its central end galvanized without any effect being produced upon the pupil. The cervical sympathetic and vagus were galvanized, yet the pupil remained immovable.

"Vomiting caused dilatation of the pupil and a return to consciousness.

"In two dogs, in which syncope and apparent death supervened, a rapid dilatation of the pupil occurred. Slow dilatation during an operation indicated a return to sensibility. The pupil should be kept constantly contracted."

These results attracted much attention, but did not pass unchallenged. Prof. Schiff, the well-known experimental physiologist at Florence, assailed them sharply, and denounced the conclusions as false and the directions as dangerous. He published an article in *L'Impariale*, which Dr. Guichard de Choisy of Marseilles trans-

lated and issued in pamphlet, along with a paper of Dr. Foa upon the pupil, under the title of "La Pupille considérée comme Esthésiomètre." I must present a *résumé* in order to show the points of the controversy. The experiments were made in Schiff's laboratory. "Recognizing," says he, "the importance of a sign of sensibility which would persist in the immobility produced by curara, I sought and found it in the pupil." In dogs immobile from curara, so that artificial respiration was necessary, he found the pupil sensitive to light, and to dilate when the dog was touched lightly by the hand. Pressure of a paw increased the dilatation considerably.

No tissues sensible to pain are destitute of tactile sensibility. After total extirpation of the cerebral lobes, the pupil responds to light and movements of the eyeballs and head; yet strong galvanic excitation of sensitive nerves in the posterior part of the body and mechanical excitation of anterior portions did not change the pupil. Ought one, then, to await the last stadium of chloroform before operating, in order to have its analgesic effect?

The more the action of chloroform is prolonged, the more dangerous it becomes, and when one has obtained a contraction of the pupil, the animal is near death. Muscular resolution precedes the contraction of the pupil. In dogs the pupil will dilate when parts are irritated, in spite of complete muscular resolution. Must one conclude, when the pupil does not contract even till death, that sensibility has persisted during the chloroformization?

The brain may not be conscious of pain, and yet of its state; and the patient upon restoration relates fancies and dreams which occurred during the painless operation. We recognize differences between tactile and painful impressions. Their conductors are different. The gray matter conducts painful and the posterior columns of the cord tactile sensations. An anæsthetic may act upon the gray matter, rich in vessels, and not upon the columns, which have few. Tactile sensations are not always abolished in perfect anæsthesia. Budin has confounded sensibility to contact with sensibility to pain. His favorable moment is most unfavorable, because chloroform has produced vascular paralysis, which exposes the patient to syncope, against which galvanism and artificial respiration are useless.

Prof. Schiff resected the posterior columns of the spinal cord of a dog, and gave chloroform till complete muscular resolution and insensibility. Galvanic puncture of crural nerve and a strong current did not affect the pupil; it remained strongly dilated. Chloroform was continued and the pupil contracted, when compression of the anterior extremities gave a feeble dilatation. After thirty minutes a strong galvanization of the median nerve did not change the pupil; it remained at a diameter of 4 mm. He removed the chloroform, and the dog recovered sensibility, but the pupils remained immovable. Later they reacted to light. He has usually found the pupil dilated in anæsthesia. In some dogs, when arterial pressure has descended to zero and there is no trace of venous coloration, the pupil does not contract. He gave chloroform at a distance from the nose, upon cotton, to eliminate asphyxia, and obtained resolution in twelve minutes.

Some dogs chloroformed to death had no contraction of the pupil. In others the contraction could not be called atresia. The pupil at the last moments of life is subject to individual variations.

Dr. Foa in a series of sixteen experiments proves "that the gray matter and antero-lateral columns of the cord transmit painful sensations, while the posterior columns transmit tactile. Painful sensations from galvanism, applied to the viscera, do not affect the pupil; while pressure and handling induce a dilatation.

"Mechanical irritation excites dilatation in the following order: brain slightly, next muscles, then tendons, subcutaneous tissue, and skin. Dilatation of the pupil occurs from such slight stimuli as to constitute the best measure of sensibility. It reacts from slight pressure, which gives no other movements, increase of blood-pressure, or pain. Media of passage must be intact. No effect is produced after section of the medulla."

I have thus presented the salient points of the controversy, with other interesting statements. The discussion still goes on; experiments have been multiplied, and charges and counter-charges made, which I shall not consider. It was with a desire to determine some of the questions at issue that I performed a series of experiments with chloroform upon animals, in the Physiological Laboratory of the University of Pennsylvania, during the autumn, with the alternate assistance of Dr. W. H.

Klapp and the Demonstrator of Experimental Physiology, Dr. Isaac Ott.

The animals were dogs, with one exception, when a cat was used. They were secured to Bernard's apparatus, some upon the belly and others upon the back. The pupil selected for observation was fully exposed to the light from a large side-window towards the west. The experiments were made in the early afternoon. The chloroform was from one quantity of Powers & Waightman's best. When shaken with chemically pure sulphuric acid it did not color it. It did not change litmus blue after exposure all day to the direct rays of the sun. It was administered upon a coarsely-cellular sponge held some distance from the nose or the tracheal tube, or was given hypodermically. When not otherwise stated, there was free access of atmospheric air. The eyelids were separated by the fingers when necessary, and in a few instances by threads passed through the edges of the lids. The experiments were made with great care, to eliminate error.

*Exp. I.*—Medium-sized terrier. Brown irides; normal size of pupil, as exposed, 6 mm.

Chl. till 7' gave 10 mm.

" " 10' " mere rim.

Muscular resolution; chl. till 12' gave mere rim.

Chl. till 18' gave 5 mm.

Anæsthesia complete, the respiration suddenly ceased; the chloroform was suspended, and the animal was resuscitated with some difficulty by Nélaton's method, and artificial respiration by external manipulation. Anæsthesia continued without more chloroform, and at 20' the pupil, which had not dilated, was 4 mm.

Chl. till 25' gave 3 mm. Respiration ceased; chloroform was suspended, and the dog restored by the same means as before.

Anæsthesia remained profound, with pupil at 4 mm.

Pinching extremities, or *approaching asphyxia*, caused contraction of pupil to 3½ mm.

At 35', while simply under observation, the pupil dilated suddenly to its fullest extent, and respiration ceased. Nélaton's method and external artificial respiration failed; tracheotomy was rapidly performed, a tube put in the trachea, a rubber tube connected with it and a pair of bellows, and at 50' the respiration became normal; the anæsthesia continued, with the pupil at 4 mm.

Pinching the posterior extremities caused a contraction to 3 mm.

Irritation of the skin, subcutaneous tissue, and muscles of the posterior extremity, by Dubois's induction apparatus, produced no appreciable effect upon the pupil.

At 60', pinching the skin upon the inside of the thighs caused contraction of the pupil to 2 mm.

The animal being in profound anæsthesia, the arches of two of the lower dorsal vertebræ were removed, and two inches of the posterior columns of the spinal cord were completely excised, as proved afterwards by examination. Wiping the cord produced a contraction of the pupil to 2 mm., the animal remaining motionless and insensible.

More chloroform was given, till at 1h. 45' pupil was 4 mm. The poles of Dubois's apparatus were now applied to the central cut ends of the posterior columns, and contracted the pupil down to 2 mm.

When applied to the peripheral ends, no effect was seen; when to the gray matter, no change occurred in the pupil.

Mechanical and galvanic irritation of the posterior extremities induced no change in the pupil, but caused the animal to move and moan. At 2 h. the pupil was 6 mm.

Dubois's poles applied to the cervical sympathetic ganglia dilated the pupil widely.

It will be noted in this experiment that the pupil contracted to 5 mm., to 3 mm., and on another occasion dilated widely just previous to the supervention of dangerous symptoms, from which only art restored life; that mechanical irritation contracted the pupil during anæsthesia; that painful irritation by galvanism did not affect it; that mechanical irritation of the posterior extremities did not affect the pupil after excision of the posterior columns of the cord; while painful sensations were felt, as evidenced by movements and moans, but did not affect the pupil.

*Exp. II.*—Full-grown spaniel. Yellow irides; tube in the trachea; normal size of pupil, as exposed, 5 mm.

Pinching skin dilated pupil to 7 mm.

Chl. till 8' gave pupil 10 mm.

" " 12' " " 7 "

" " 18' " " 6 mm., and muscular resolution. Respiration ceased, chloroform was removed, and the dog resuscitated by Nélaton's method and bellows connected with tracheal tube. At 23', pupil was 6 mm., and anæsthesia perfect. Pinching and cutting the skin of several parts produced a contraction of pupil to 5 mm.

At 28', opened the spinal canal in dorsal region and excised two inches of the posterior columns of cord, which operation restored consciousness and dilated pupil to 10 mm.

Chl. till 43' gave 6 mm. and anæsthesia; chloroform stopped; pinching parts of the skin, or approaching asphyxia, contracted pupil to 4 mm.



Respiration ceased, and was obliged to use the bellows again. At 55', normal respirations, complete anæsthesia, with pupil at 6 mm.; pinching posterior extremities had no effect on the pupil; pinching the anterior ones contracted it to 4 mm. At 60', Dubois's poles applied to central ends of cut posterior columns contracted pupil to 4 mm.; applied to the peripheral ends and to the gray matter did not affect it.

*Exp. III.*—Full-grown cat. Gray irides; transverse normal diameter of pupil, as exposed, 5 mm.

Chl. till 10' gave 4 mm.

" " 15' " 3 "

" " 25' " 5 mm., and muscular resolution and anæsthesia; chloroform suspended; pinching skin contracted to 3 mm. At 35', Dubois's poles applied to the skin of extremities and ears did not affect pupil; to the vagus, slowed heart a little. At 45', poles applied to cervical sympathetic for 10'' dilated pupil to 11 mm. and restored sensibility.

Chl. till anæsthesia and 5 mm.

At 48', pinching skin gave dilatation to 6 mm. At 60', Dubois's poles to cervical sympathetic 10'' gave dilatation, as before, to 11 mm. At 1 h. 30', when cat was fully restored, poles applied to cervical sympathetic 10'' dilated pupil to 13 mm.

*Exp. IV.*—Full-grown Scotch terrier. Brown irides; tube in trachea; normal size of pupil, 6 mm.

Chl. till 5' gave 10 mm.

" " 12' " 12 mm., muscular resolution, and anæsthesia; chloroform stopped; pinching anterior and posterior extremities contracted pupil to 11 mm. At 20', pupil went suddenly down to 4 mm.; the heart beat at 50 a minute, and respiration ceased; when restored by the bellows, heart was 108 and pupil at 7 mm., and then gradually dilated to 12 mm.; anæsthesia continued. At 30', pinching and cutting skin contracted to 8 mm., and, later, restored consciousness.

Chl. till 38' gave 5 mm.; stopped administration; clonic convulsions set in, and continued for 5', with pupil 10 mm.

At 45', nothing having been done, pupil was 7 mm.; convulsions had ceased, respiration was imperfect, and heart weak.

At 55', the pupil still remained at 7 mm.

At 1 h. 30', after apparent recovery, gave 2 cc. of curara, and applied the apparatus for artificial respiration; heart beat very feebly, and pinching and cutting skin did not change the diameter of the pupil; manometer was connected with the left femoral, but pressure was only 20 mm., and the blood repeatedly clotted in canula; it was impossible to proceed, and dog was allowed to suffocate. When respiration was stopped, the heart was momentarily increased in force, and beat several minutes afterwards, but pupil remained at 7 mm. even after death.

*Exp. V.*—Half-grown black-and-tan ter-

rier. Yellow-gray irides; normal size of pupil, as exposed, 4 mm.; pinching skin dilated to 6 mm.

Chl. till 5' gave pupil 5 mm.

" " 8' " 9 "

Muscular resolution and anæsthesia; pinching caused movements and moans, and dilated pupil to 10 mm.

Chl. till 15' gave 9 mm.

" " 18' " 5 "

Chloroform removed; nictitating membrane drawn over eyeballs; eyeballs turned inwards and lids closed; a rattling stertor present; secured the lids open by threads; held ball by forceps, and found at 23' pupil at 6 mm.; pinching skin had no effect on pupil; anæsthesia was profound.

At 36', pupil was at 9 mm.

At 42', pupil was at 6 mm.; movements and sensibility.

At 50', pupil at 5 mm.; dog tumbled around the room for an hour, and was then fully restored.

*Exp. VI.*—Full-grown, small, tan-colored terrier. Yellow irides; normal size of pupil, as exposed, 3 mm.

Chl. till 5' gave pupil 10 mm.

" " 8' " 8 "

Muscular relaxation, anæsthesia, and stertor; chl. removed.

At 10', pricking posterior extremities dilated pupil to 11 mm.; but caused no other movements, no cries.

Chl. till 13' gave 11 mm.; compass-points plunged into posterior extremities dilated pupil to 13 mm., but dog remained immovable and insensible.

Chl. till 15' gave 11 mm.; compass-points applied again dilated to 13 mm.; but no signs of painful sensibility.

Chl. till 18', pupil went to 4 mm. suddenly, and respiration ceased.

Chl. was removed, and animal restored by external artificial respiration.

At 24', pupil was at 4 mm.; anæsthesia complete. Pricking posterior extremity dilated to 5 mm., but it soon returned to 4 mm.

Dog was permitted to return to consciousness and life. The pupil remained at the same diameter throughout, and at one hour stood at 4 mm.

*Exp. VII.*—Large, full-grown spaniel. Brown irides; normal size of pupil, as exposed, 5 mm.

Chl. till 4' gave 6 mm.

" " 8' " 10 "

" " 12' " 11 "

Pinching skin caused movements and cries.

Chl. till 15' gave 13 mm.

Muscular relaxation and anæsthesia; pinching skin contracted pupil to 11 mm., but caused no movements or cries.

Chl. till 20' gave 13 mm., stertor and clonic convulsions for 5'. Chl. removed. Sulphuric acid to conjunctiva, no effect. Points of compasses plunged into thigh caused no move-

ments or cries, but contracted pupil to 12 mm.

At 35', compasses applied again contracted to 8 mm., but pupil dilated again to 11 mm.

At 50', the cornea was sensitive; pricking extremities contracted pupil to 8 mm.

At 55', dog was released, and lay stretched out on the floor, unable to stand.

At 60', dog stood imperfectly, walked around, rubbing his nose on the floor, and occasionally falling, with pupil at 6 mm.

At 1 h. 20', dog was feeble, but walked steadily, and tried to escape, with pupil at 6 mm.

*Exp. VIII.*—Large, full-grown, tan-colored terrier. Same-colored irides; normal size of pupil, as exposed, 5 mm.; struggles; dilated widely.

Chl. till 5' gave 7 mm.

" 8' " 11 "

" 11' " 12 "

Eyeballs oscillate, and dog moans. Slight stertor, muscular relaxation, and anæsthesia; pricking posterior extremity did not affect pupil; dog remained silent and motionless.

Chl. till 20' gave 8 mm.; eyeballs rolled upwards; nictitating membrane was drawn over and lids closed; stertor very noisy; chl. was suspended; pricking posterior extremity contracted pupil down to 6 mm.

At 25', appearances the same; respiration slow and shallow; heart slow and feeble, and pupil gone down to Budin's *atrésie*,—3 mm. Chemical and mechanical irritation had no effect on pupil; animal moved and moaned a little, but these two manifestations were not increased when the compass-points were plunged deeply into the tissues.

At 30', the pupil had gone to 2½ mm.; dog moaned, as if dreaming, but deep pricking caused no movements; blood from anterior extremity almost black.

At 40', pupil was at 4 mm.; pricking caused dilatation, movements, and cries.

At 50', pupil was 5 mm.; dog sleepy, but moved when pinched, and, when put on the floor, staggered about.

*Exp. IX.*—Medium-sized spaniel. Brown irides; normal size of pupil, as exposed, 6 mm.

Chl. till 5' gave 8 mm.

" 10' " 11 "

" 15' " 12 "

Muscular relaxation and anæsthesia; cutting skin did not affect pupil or immobility.

Chl. till 20' gave 4 mm.; heart and respiration slow; sciatic nerve exposed; chl. stopped; nerve pinched, and pupil dilated to 5 mm., but no movement or cries. Chl. pushed; respiration stopped a few seconds, but went on again, during which intervals pulse increased in frequency; introduced Middendorp's needles into heart-muscle and pushed the chl.

At 30', the pupil was at 4 mm.; respiration ceased, and pupil dilated to a rim; chl. re-

moved; heart beat feebly for 8' after breathing had ceased; the pupil gradually contracted to 8 mm., and remained so after death.

*Exp. X.*—Full-grown, medium-sized yellow cur. Gray irides; normal size of pupil, as exposed, 8 mm.; cord around trachea; cord drawn tight.

At 2', pupil 10 mm.

At 4', gave pupil 9 mm.

" 6' " " 5 "

" 9' " " 8 "

" 11' " " 12 "

" 12' " " 10 "

" 14' " " 9 "

and dog dead, with cyanosis of lips, tongue, and eyeballs.

*Exp. XI.*—Full-grown, medium-sized black-and-tan terrier. Tube in trachea, artificial respiration. Ludwig's mercurial manometer connected with canula in right carotid, with his registering apparatus and Foucault's regulator. Motor nerves paralyzed by curara. Chloroform given by hypodermic injection into cellular tissue of femoral region at stated intervals. Records every 15'', and at longer intervals occasionally. Pressure in millimetres.

Observations previous to injection :

TIME. PULSE. PRESSURE.				
In 15''	20	151	mm.	
30''	20	124	"	Chloroform $\mathcal{M}$ x injected.
45''	20	151	"	
60''	20	150	"	
1' 15''	22	135	"	Observation interrupted by a clot in canula for thirty seconds.
1' 30''	18	131	"	
2' 15''	12	153	"	Chloroform $\mathcal{M}$ x injected.
2' 45''	12	140	"	
3'	13	150	"	
3' 15''	13	155	"	
3' 30''	12	152	"	
3' 45''	12	146	"	Chloroform $\mathcal{M}$ x injected.
4'	14	154	"	
4' 15''	19	150	"	
4' 30''	18	150	"	
4' 45''	17	132	"	Chloroform $\mathcal{M}$ x injected.
5'	24	101	"	
5' 30''	20	52	"	
5' 45''	24	24	"	

After this time the pulse increased in frequency, and became a slight wave with occasional cessations, indicated by straight lines; the pressure steadily declined, and death occurred from failure of circulation, about two minutes after the last record.

Post-mortem, twelve hours later. Rigor

mortis decided; lungs slightly congested; convex surface of liver mottled and brown; heart stopped in diastole, with ventricles full of black clots, which, by prolongations, extended into the great vessels and some of their branches. The carotids were filled to the canula on one side, and to the base of the skull on the other, respectively. The auricles and venæ cavæ contained looser clots, not distending the walls.

*Exp. XII.*—Large, full-grown, black spaniel. Tube in trachea, through which chloroform was inhaled. Canula in right carotid connected with Ludwig's manometer and Foucault's apparatus, as before. Pneumogastriæ exposed.

Observation previous to inhalation of chloroform. Pressure in millimetres.

TIME.	PULSE.	PRESSURE.	
15"	22	160 mm.	
30"	28	165 "	Chloroform by inhalation; struggles a little.
1' 45"	22	146 "	
1' 20"	20	150 "	Chloroform removed.
1' 15"	20	160 "	
1' 30"	24	156 "	Chloroform began again.
1' 45"	26	130 "	
2'	24	112 "	
2' 15"	30	106 "	
2' 30"	26	82 "	Chloroform removed, noisy stertor and anæsthesia.
4' 30"	33	126 "	Left carotid compressed for ten seconds; <i>little rise.</i>
4' 45"	30	130 "	Pressure having risen from anæmia of vaso-motor centres.
5'	26	136 "	Left carotid compressed for ten seconds.
5' 15"	28	138 "	
5' 30"	28	138 "	Pulse became very feeble, the manometric indicator marked a straight line, and a clot was formed in the canula. Dog returned to consciousness.
20' 15"	23	153 "	
20' 30"	24	153 "	
21'	28	172 "	Left carotid compressed for ten seconds; <i>great rise.</i>
21'	26	150 "	
21' 15"	26	150 "	Poles of Dubois applied to sciatic nerve ten sec.

TIME. PULSE. PRESSURE.  
21' 30" 22 166 mm. Chloroform given to anæsthesia.

28' 24 110 "  
28' 15" 22 118 " Poles applied to sciatic ten seconds.

28' 30" Clot removed from canula.

30' 15" 28 97 "

Another clot formed, and dog was chloroformed to death. Heart and respiration seemed to cease together. Pupil was at 4 mm., and so remained.

Post-mortem six hours later: rigor marked; lungs and liver slightly congested; heart stopped in diastole and literally stuffed with black clots; those of the ventricles extending into the vessels as before.

In reference to these experiments I have only to present a few considerations. Tactile sensibility is different from painful sensibility, and their activities pass by different media to the brain.

The posterior columns of the cord transmit tactile, and the gray matter painful, sensations upwards. Chloroform may not affect sensibility to contact, while it abolishes that of pain, or it may temporarily obtund both sensations.

Tactile sensations will affect the size of the pupil when the animal is entirely insensible to pain. A dog may be partially conscious of the pain of an operation and move and moan, yet the pupil remain immovable.

There is no constant relation between the size of the pupil and muscular resolution or anæsthesia. The latter conditions occur as frequently and perfectly with a widely-dilated pupil as with a contracted one.

There is no constant sequence in muscular resolution and anæsthesia; sometimes one precedes, sometimes the other.

The pupil is dilated by struggles; by tactile sensations in certain conditions; by partial, and sometimes by complete, chloroformization; by convulsions coming on during anæsthetic sleep, and sometimes by attacks of syncope. Contraction comes on from tactile sensations under certain conditions and from approaching asphyxia.

The atresia of Budin does not always occur in chloroformization unless the chloroform is pushed recklessly some time after anæsthesia is complete. It is always accompanied by slow, shallow respiration, feeble heart, greatly lowered blood-pressure, and almost black blood, and indicates a condition of great danger to life. Failure

of respiration and syncope are exceedingly likely to follow.

It takes about fifteen minutes to produce anæsthesia in dogs with chloroform, and they present individual differences in the effects which it may have upon the pupil. When a dog is insensible to pain, the amount of variation in the pupil caused by peripheral irritation is about 2 mm.

Contrary to Budin and Schiff, I find its changes to vary greatly in different animals and in different stages of chloroformization in the same animal. No rule can be stated as absolute. The following are the average results obtained. In the normal condition irritations dilated the pupil. It never contracted in the beginning of chloroformization. During the dilating stage from chloroform, peripheral irritations contracted it. When the pupil was smaller than normal, but anæsthesia was incomplete, irritations dilated it. When completely anæsthetized, they generally caused a slight contraction. Sometimes the pupil would remain immovable from anæsthesia till complete restoration or death, and again it would go through a retrogression of the movements which had taken place during the chloroformization. I have seen the pupil widely dilate before death, and seen it maintain the atresia of Budin. I believe the former to accompany syncope from chloroform, while the latter coexists with failure of respiration. At death the pupil often takes a condition of equilibrium, the diameter being equal to the width of the iris.

It is known that the pupil is responsive to light shortly after death; and this, without the facts presented, shows the folly of trusting to such an erratic indicator.

Dogs, like men, differ in the quantities of chloroform necessary to produce anæsthesia. In some dogs the first few inspirations of the agent may cause a fatal syncope. Others inhale much more without the supervention of dangerous symptoms. This uncertainty constitutes the great danger in using it. In some experiments, where respiration ceased and the dogs nearly died, the chloroform had been removed some time: therefore the cause could not have been deprivation of air.

Chloroform diminishes the power of the sympathetic to dilate the iris. It depresses the reflex excitability of the vaso-motor centres, as shown by my experiments, in compressing the carotid and irritating a

sensitive nerve,—following the beautiful demonstration of Dr. H. P. Bowditch, of Boston. Paralysis of these centres permits venous congestion everywhere; and it is an approach to this state which produces the narrow pupil of Budin. It always accompanies narcotism, and is always dangerous. Budin says, "The pupil dilates before asphyxia from chloroform." I cannot confirm this. In my deaths from chloroform-asphyxia the atresia of the pupil has seldom changed. I believe deaths from chloroform happen oftener from failure of respiration than from syncope. The slowness of respiration and of circulation prevents the corpuscles from eliminating their carbonic acid and taking up oxygen as in the normal state; and the former accumulates greatly, as shown by the dark color of the blood. Their influence upon nutrition is thus greatly hindered. The heart becomes feebler from malnutrition and from partial paralysis of its contained inhibitory ganglia. The vaso-motor centres are depressed, and vascular paralysis to some extent results. With vascular inhibitory action removed from the blood, the fibrinoplastin and fibrinogen form fibrin in excess. The harmonious action of the heart and vessels is impaired, local stagnations of the wounded blood occur, and clots form easily,—perhaps assisted by negative currents which never appear in health,—the respiratory centres fail, and all is over. The sudden deaths from syncope are due to direct action of the chloroform upon the muscular structure of the heart and its contained ganglia; but the previous conditions mentioned must be more or less present. These can never be foreseen or remedied. The convulsions which supervened in two experiments may have been from cerebral anæmia, because the pupil did not dilate much, as Budin says it does in asphyxia; and they cured themselves by carbonic acid accumulation, as maintained by Prof. Joseph Carson. Though rejecting Budin's statement, as I do, a different explanation would be more reasonable. In Experiment X. true asphyxia gives a series of pupillary changes strikingly similar to those of chloroform-narcosis.

The experiments on the pulse were too few and crude to merit much attention. The heart was slowed a little and then increased. The pulse-line was very peculiar. After chloroform was begun, the systolic apices tumbled down to table-



lands and irregular round-topped hills, often interrupted by straight lines; pressure was much lowered.

In conclusion, then, Dr. Budin, in recommending the production of an atresic pupil by chloroform before operating, advocates the administration till the third stage—that of narcosis—is produced; advice which, if followed, must place the patient in great peril. Against such counsel let my experiments protest.

When chloroform is doubtful and ether safe, it seems madness to choose the former.

821 SOUTH TWELFTH STREET.

## TRANSLATIONS.

### EARLY RESECTION OF THE PERIOSTEUM IN DIFFUSE PHLEGMONOUS PERIOSTITIS.—

Duplay (*Société de Chirurgie*, session of 13th October, 1875; *Centralblatt f. Chirurgie*, No. 1, 1876) had a patient, 16 years of age, who suffered from osteo-periostitis of the second phalanx of the right middle finger, and later (January 8) with purulent periostitis (and, as the operation showed subsequently, osteomyelitis) of the left tibia. Numerous incisions were made, for the relief of the latter, which laid bare the entire diaphysis of the tibia. On account of the progressive exhaustion of the patient, from profuse suppuration, diarrhoea, and continuously high fever, and also because of a light chill and painful swelling of the left shoulder of a suspicious character, resection of the entire denuded portion of the tibia was determined upon, and was carried out on the 2d of February. The soft parts were divided from the tuberosity to the malleolus internus, and the periosteum carefully loosened where this was necessary, opening by this means several new abscesses. The bone was then divided at the upper limit of separation of the periosteum, and the tibia luxated inwards, when it easily became separated from the suppurating epiphyseal juncture. The length of the piece of tibia removed was twenty-six centimetres ( $10\frac{1}{2}$  inches). The marrow was infiltrated with pus; even the section opened by the saw displayed a small abscess in the spongiosa. The after-treatment consisted in a plaster-of-Paris splint, the wound being filled with charpie soaked in chlorine-water. The

result was as follows. The patient's general condition improved greatly; the swelling in the shoulder and the fever abated; the wound granulated nicely. Only a small portion of the upper end of the tibia necrosed, and was subsequently removed. By the 25th of February, ossification along the whole extent of the wound could be observed. By the beginning of May, three-fourths of the wound were cicatrized, and the formation of bone had progressed rapidly; only the union with the inferior epiphysis remained movable. Silicate of soda bandages were employed, and the patient went on crutches. By the 3d of September, no necrosis; the tibia shortened by two centimetres; the leg slightly curved outwards; knee-joint movable; ankle-joint not perfectly so; very slight limp. Schede, of Berlin, the German translator of this case, remarks that neither in the history of the case nor in the remarks to which it gave rise was any distinction made between periostitis and osteomyelitis. Schede regards "phlegmonous periostitis" in general, and this case in particular, as osteomyelitis. x.

CURARE IN HYDROPHOBIA.—Offenberg (*Wien. Med. Presse*, 1876, p. 1) gives a case of this disease occurring in a girl of 18. After using injections of morphia and inhalation of chloroform without effect, seven hypodermic injections of curare, aggregating three grains, were administered in the course of five to six hours. The muscular disturbance ceased almost immediately, the other symptoms subsiding more gradually, and, at the same time, paralysis appeared, reaching its height the next day, and gradually diminishing. Great prostration continued, and it was some months before the patient recovered. x.

EXTIRPATION OF THE UTERUS AND BOTH OVARIES.—E. Bockel (*Centralbl. für Chirurgie*, No. 1, 1876), at the urgent desire of a patient, operated upon a tumor diagnosed as a multilocular ovarian cyst, although it was possible that the tumor might prove a fibro-cystoma of the uterus,—which in fact it turned out to be. The tumor, a fibro-myxoma, was situated between the two horns of a uterus bicornis. The uterus and both ovaries were extirpated with the tumor, the pedicle being brought down to the lower point of the wound. The patient died in three days, from peritonitis. x.

## PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, MARCH 4, 1876.

### EDITORIAL.

#### HOPKINS UNIVERSITY.

ON the 22d of February, the inauguration of President Gilman took place at Baltimore, with appropriate ceremonies. In the course of a long, elaborate, and very able speech, he portrayed the future policy of the institution whose destinies have been so largely intrusted to him. If in the carrying of details into practice an executive skill commensurate with that of conception be displayed, almost in a day will be born an institution outrivalling everything on the continent. As doctors, we are, of course, especially interested in that portion of the address which relates to the medical department. The main feature of this is the assertion that the plans of the department yet remain to be thought out, and that during the building of the hospital there will be plenty of time for doing this. The principle, however, that the professors should be salaried, not feed, is clearly recognized. A new idea is proposed, which strikes us so favorably that we give it in the words of the President:

"But in the mean time we shall have opportunity to provide instruction antecedent to the professional study of medicine. At the present moment medical students avoid the ordinary colleges. A glance at the catalogues is enough to show that the usual classical or academic course is *shunted* by the doctor's car. The reasons need not be given here. But who can doubt that a course may be maintained, like that already begun in the Sheffield School at New Haven, which shall train the eye, the hand, and the brain for the later study of medicine? Such a course would include abundant practice in the laboratories of chemistry, zoology, and physics;

the study of the anatomy, physiology, and pathology of the lower forms of life; the investigation of the principles of drainage and ventilation, and of climatic or meteorological laws; the geographical distribution of disease; the remedial agencies of nature and art; and, besides these scientific studies, the student should acquire enough of French and German to follow with ease European science, and enough of Latin for his professional needs. In other words, in our scheme of a university, great prominence should be given to the studies which bear upon life,—the group now called biological sciences.

"Such facilities as are now afforded under Huxley, in London, and Rolleston, at Oxford, and Foster, at Cambridge, and in several German universities, should here be introduced. They would serve us in the training of naturalists, but they would serve us still more in the training of physicians. By the time we are ready to open a school of medicine we might hope to have a superior, if not a numerous, body of aspirants for one of the noblest callings to which the heart and head can be devoted."

In speaking of the selection of professors, President Gilman clearly recognizes the difficulty of obtaining an efficient corps of noted men. He shows that although some of the chairs will be filled by distinguished foreigners, it is not possible to do this to any great extent, and that the University must rely chiefly upon the young men of this country. He proposes a regular series of promotions, with constantly increasing emoluments for the development of the talent of the young,—scholars, fellows, assistants, adjuncts, professors, and University professors.

In conclusion, we wish the Hopkins University God-speed, and rejoice, as must every patriotic scientist, for the prospect of our national exaltation in higher culture and in the deserved respect of thinking Europe, to be wrought out through the munificence of Johns Hopkins, the executive ability of the trustees and their president, and the scientific and literary labors of the professors.

## PROFESSIONAL SECRETS.

THE Linton case has as yet made no progress, having been laid over at the last session of the court. Recently a similar case has been brought to our notice. A physician was called to an abortion, occurring, presumably, as the result of interference, in the person of a young unmarried lady, of position in society. On account of the gravity of the matter, he consulted a prominent lawyer, whose written opinion lies before us. According to this, "any word or act done with intent to prevent the discovery of the offence would render the physician liable to indictment for misprision; but the mere knowledge, professionally acquired, that such crime had been committed, and failure to discover it, would not be misprision, unless, indeed, the felony was perpetrated in his presence, in which case the law would require him to give notice as expeditiously as possible to a magistrate, and failure to do so would be misprision. 1 Hale, 374; 1 Hawk., P. C., c. 59; 4 Blk. Com. 121."

An incident published in *Le Progrès Médical* of January 8 illustrates very forcibly the workings of the French law. A Dr. Berrut offered for registration a birth, but refused to tell who the father and mother were, or at what house the confinement had occurred. The registration was refused, and the matter finally taken before the higher courts,—where it was decided that if Dr. Berrut had obtained the knowledge in the practice of his profession he could not be forced to reveal it. It was therefore ordered that the infant be registered as Louise Armande, born in the seventh arrondissement, parents unknown.

## MEDICAL SERVICE AT THE CENTENNIAL.

THERE is now being erected upon the Centennial grounds a building of some size, which is to be used as a medical headquarters. Two small wards—one for males,

one for females—are to be attached, with beds, medical supplies, and everything in readiness for any emergency. At all times during the exhibition there will be a physician on duty in this building. Amidst the multitudes who will throng the Centennial there must be from time to time cases requiring immediate attention,—sudden illness, accidents, and, if the summer prove a hot one, sun-stroke, etc., etc.; so that the provision made seems to us a very wise forethought. No patients will be kept over night in the hospital, the beds being provided simply for the relief of cases of severity until they can be removed in the ambulance to their homes or some of the city hospitals. Some of our country brethren, mayhap even of our city confrères, will be glad to know that large and commodious offices will also be furnished in the building, in which the staff will be at all times happy to receive such physicians as may desire a few moments' rest from the toil of sight-seeing.

## CORRESPONDENCE.

NEW YORK, February 22, 1876.

TO THE EDITOR OF THE PHILA. MEDICAL TIMES:

DEAR SIR,—At a late meeting of the Academy of Medicine, Dr. Horace T. Hanks, Clinical Assistant to Prof. Thomas at the College of Physicians and Surgeons, read a comprehensive paper on the Cause and Treatment of Unusual Uterine Hemorrhages. The first part of it was devoted to an exposition of the methods necessary for a physical examination of the female genital organs, without which it is impossible to obtain a satisfactory condition of the parts,—detailing with great minuteness the position of the woman, the arrangement of the table or bed, the necessity of a good light, the manner of using the speculum, the uterine sound, bi-manual palpation, the vaginal, vesico-vaginal, and rectal touch, and other similar matters.

Coming to the subject proper, after these preliminaries, he made a division of uterine hemorrhages into those not connected directly with pregnancy or labor, and those of the puerperal state.

As affections likely to be associated with uterine hemorrhage, he first mentioned hæmatocele, cellulitis, pelvi-peritonitis, and, in rare cases, phthisis. In all these, however, the

loss of blood is usually very slight, and the other symptoms are of so much greater importance that it is not necessary to devote attention to it.

He then spoke of conditions in which uterine hemorrhage is a prominent and often alarming symptom:

*The menopause.* Dr. Hanks is very decidedly of the opinion that the *physiological* flooding at the change of life is not great, and that when it is profuse it is invariably due to some pathological cause. Cancer very frequently develops at this period, and, as the hemorrhage really occasioned by it is supposed to be simply one of the normal phenomena attending the menopause, the presence of malignant disease is often not suspected until it has made alarming progress.

*Fibroids.* Dr. Hanks has obtained very fair results in the treatment of these growths by the internal and hypodermic use of ergot, combined with tonics; and he detailed the history of a large subperitoneal one, which was diminished one-fourth in size in two months by this means.

*Carcinoma.* Here he recommended the application of the sesquichloride of iron twice a week, and in some cases simply alum; but made no mention of the use of the actual cautery or galvano-cautery, which have proved so signally effective in arresting and preventing hemorrhage from cancer.

*Retroversion.* This is apt to be associated with, and, indeed, is really caused by, congestion and endometritis. In the treatment of the malposition, Dr. Hanks, after restoring the organ, makes use of the cotton and glycerin packing which Prof. Thomas almost invariably employs before inserting a pessary.

*Fungoid excrescences on the mucous membrane of the uterus.* The diagnosis of this condition of the endometrium is to be primarily arrived at by a process of exclusion, and will, of course, be confirmed when any of the little congeries of vessels in tufts are detached. The treatment by means of Thomas's flexible wire curette is most safe and effective.

*Ulceration and erosion* (chronic granular os) are generally accompanied by changes in the mucous membrane of the uterus, and by displacements, and these must be corrected, as well as the ulceration. The best application in the treatment of the latter is strong nitric acid, frequently repeated, and followed by the use of water. Iodoform and the sesquichloride of iron Dr. Hanks has also found useful; and as the case progresses towards recovery he employs milder agents. He is very strongly opposed to the use of the nitrate of silver, which he believes occasions contraction of the os and is a very frequent cause of dysmenorrhœa and sterility.

Dr. Hanks added greatly to the value of his paper by the recital of cases illustrative of the various conditions giving rise to uterine hemorrhage taken from his own experience, which

has been extensive in connection with Prof. Thomas's clinic and the gynecological department of the Demilt Dispensary, as well as in private practice.

The latter part of it was devoted to hemorrhages incident to the puerperal state.

*Retained placenta.* He recommends the bi-manual operation for the removal of the placenta, and has also found the hypodermic use of ergot of great service. Where there is much exhaustion, he is in the habit of injecting forty minims of brandy with twenty minims of the fluid extract of ergot, and almost invariably with the best results.

*Placenta previa.* In this condition we are first to endeavor to cause the active contraction of the uterus, the fœtus serving as a tampon in the os; and, failing in this, we must dilate the os, and deliver as rapidly as possible.

*Post-partum hemorrhage from inertia.* Here his great reliance is the hypodermic injection of ergot, and compression over the uterus with the hand, which should be kept up by the nurse or other attendants in some cases for twelve or even twenty-four hours.

The paper was afterwards discussed by Professors Peaslee and Barker. The former spoke first of the relation of retroflexion and endometritis, and gave it as his positive opinion that the latter was never a cause of this or any other displacement, and that when they were both found present in any case, this was simply a coincidence. In order that retroflexion may be caused by the increased weight of the uterus, it is necessary that the parenchyma of the organ, and not merely the endometrium, should be affected by chronic congestion or repeated attacks of inflammation. Another point in pathology on which he differed from the author of the paper was in regard to the term "granular erosion." There was really no erosion, and certainly no ulceration, he said, but simply a granular appearance due to the hypertrophied condition of the normal papillæ of the os. When these become denuded of their epithelium, it makes them present the gross appearances of erosion and ulceration. His treatment of this condition is to cut down these so-called granulations with the curette and apply raw cotton to the surface. This hypertrophy of the external papillæ is almost universally met with in women who have borne children, but that of the papillæ just within the os, as a rule, is seen only in the female who has never been pregnant. Dr. Peaslee regards scarification as decidedly the most efficient agent for the relief of uterine congestion, and spoke of the facility with which it could be employed within the cervix or over the entire cavity of the uterus, if necessary. In the treatment of cancer attended with hemorrhage, he is in the habit of cutting away the exterior fungus growth down to the scirrhous base below. By repeating this every two or three weeks, the recurrence of hemorrhage is effectually pre-



vented, and life can thus often be prolonged to a very considerable extent.

Dr. Barker made a very instructive address on the subject of the paper of the evening, confining himself principally to the mention of those conditions accompanied by uterine hemorrhage to which Dr. Hanks had not referred. He first alluded to hemorrhage due to hyperæmia of the organ on account of perimetric exudative adhesions, which greatly impede the circulation at the time of the catamenia. Among the other affections he spoke of were the following:

*Acute ovaritis.* This is very rare, except among puerperal women.

*Ovarian dysmenorrhœa*, which may be accompanied by either plethoric or anæmic conditions of the general system.

*Acute ovarian displacements.* In addition to the peculiar pains and other symptoms incident to this condition, there is often menorrhagia extending over two or three menstrual periods.

*Obstructed portal circulation, or circulation through the right heart, and certain affections of the kidneys*, as well as some conditions of other remote organs, frequently occasion uterine hemorrhage.

*Disturbed brain-action from emotional causes.*

*Toxic affections, such as malaria and the exanthemata.* Under this head Dr. Barker related a remarkable case of menorrhagia in a girl of eleven years, who was suffering from measles at the time. He has also seen the same in four cases of scarlatina.

*Anæmia associated with a marked tendency to obesity.* In some of these cases there is a diminution of the menstrual flow, and in others just the reverse. The blood is found to be impoverished, though the patient may present the appearance of good health, the face being flushed on account of the congestion of the capillaries, which are too small to admit of the free passage of the blood when it is normal in character. Palpitations and a firm belief in the existence of disease of the heart are also frequently associated with this condition. Dr. Barker's method of treatment in these cases is first to reduce the watery elements of the blood by the administration of acetate of ammonium and saline cathartics, and then to give chlorate of potassium, followed up by iron and quinine.

*Chlorosis.* This, however, is more frequently accompanied with amenorrhœa than with menorrhagia.

The concluding part of his remarks was devoted to the subject of flooding at the climacteric period. Where the uterus is increased in size and weight, he instructs the patient to use a suppository of cacao butter, containing about three grains of Squibb's aqueous extract of ergot, three times a day in the rectum for a week previous to the expected menstrual flow. He prefers to use ergot in this way rather than hypodermically, because

it can be applied thus by the patient or nurse, and because he has frequently seen troublesome abscesses result from its subcutaneous injection.

If the menorrhagia still persists, he concludes that there is some lesion of the internal surface, and he then employs cylinders of iodoform. These each contain fifteen grains of iodoform, made up with a little gum tragacanth, and one of them is to be inserted into the cavity of the uterus daily for five or six days before the expected flow, a pledget of cotton being afterwards placed against the cervix to retain it in position. The iodoform acts admirably in causing the cicatrization of the endometrium, and in Dr. Barker's hands has almost entirely superseded the use of sulphate of zinc and persulphate of iron, which he formerly employed in these cases.

The last meeting of the County Medical Society excited unusual interest: so that the large hall of the College of Physicians and Surgeons was crowded to excess.

The President of the Society, Dr. Sands, read a paper on "Gleet, and especially its Relations to Stricture of the Urethra," in which he maintained the correctness of the opinion generally received, that the normal urethra is characterized by four contractions and three dilatations, the bulb being the largest part and the prostatic portion the most dilatable, though very extensive dilatation of the latter is not practicable, on account of the density of the tissues surrounding it. He exhibited four beautiful wax casts of the urethra, made on the cadaver, to confirm his position, and showed that under ordinary circumstances the opposite walls of the canal are in direct apposition with each other, by means of a section of the frozen penis. He announced himself as old fogey enough to adhere to the time-honored method of treating strictures by dilatation, and strongly opposed the slitting up of the external meatus, which, he said, created a kind of artificial hypospadias, and was productive of much more injury than good, by thus making a deformity which did not exist naturally.

Dr. Otis, on the other hand, maintained that measurements of the urethra taken after death were wholly unreliable, quoting Sir Henry Thompson as his authority. During the last month he had obtained (by means of the urethrometer he has invented), in the presence of several well-known surgeons of this city, the measurements of one hundred normal urethras in the living subject; and they all, without exception, went to prove that there is no such dilatation as the fossa navicularis at all, but that the calibre of the urethra is really the same from the meatus externus to the bulbous portion. His observations furthermore proved that there was a certain absolute relation existing between the size of the penis and that of the urethra belonging to it, so that from the measurements of the one we

could obtain a definite knowledge of the calibre of the ether. As to slitting up the external meatus, he believed that this was often necessary to obtain a cure; and that when this had been done, gleet did not follow in the wake of acute urethritis.

The last meeting of the Medico-Legal Society also proved of more than ordinary interest, when Prof. Doremus read a paper on "Milk," whose whole aim seemed to be to prove that the lactometer, on which the Board of Health now depends for the detection of adulteration of milk, is not only entirely useless, but even offers a premium upon fraud. He proved by experiment that skimmed milk was of greater specific gravity than that containing cream, and showed that the lactometer would float at the same level whether the milk was diluted with a large amount of water or contained a large amount of cream.

He showed also that the microscopic test was fallacious, on account of the impossibility of getting the two glass slips between which the drop of milk is placed at exactly the same distance from each other at all points, and unless this could be accomplished no correct appreciation of the fat-globules present could be obtained. His conclusion, therefore, was that the only true test is that of analysis.

The Board of Health, however, does not seem to have been dismayed by the attack of the professor on their way of treating the milk question, and, lactometer in hand, President Chandler still pursues vigorously his crusade against the fraudulent dealers. Since the meeting of the Medico-Legal Society, quite a large number of them have been convicted and fined from the evidence of his little instrument. In all doubtful cases, however, we believe, it is the uniform custom of the health authorities to resort to analysis also, in order to confirm its verdict; but it is not ordinarily a difficult matter to detect whether any given specimen of milk is adulterated with cream or with water.

A case of death while under the influence of ether has occurred at Bellevue Hospital. The patient was suffering from a fracture of the superior maxillary bone, and the anæsthetic was administered by the house-surgeon for the purpose of applying a plaster-of-Paris bandage. The latter had given orders that he should have no food for some hours previously, but, through the carelessness of the nurse, the man's wife was permitted to give him a large quantity of soup, containing meat, onions, etc., just before the setting of the fracture. When he had been under ether fifteen or twenty minutes, he began to vomit, and soon after appeared to be suffocating. Tracheotomy was almost immediately performed, but he only breathed spasmodically two or three times after the tube had been inserted, and then died. At the necropsy, it is said, pieces of meat and onions were found lodged in the trachea.

The coroner's jury rendered a verdict that death was caused by the inhalation of ether, accelerated by hypertrophy of the heart, and that the immediate cause of death was asphyxia, the result of accumulations of mucus from the bronchi ascending to the trachea during the inhalation of ether. They censured the nurse for allowing food to be given to the patient previous to the operation, and also blamed the medical staff for not ascertaining the condition of the heart before administering the anæsthetic.

Dr. Henry A. Hartt, who has long had in contemplation the foundation of a hospital for the "radical and permanent cure of chronic diseases" in this city, recently called a public meeting in Association Hall for the purpose of organizing the movement. Addresses in its behalf were made by several prominent lawyers and clergymen, and by Dr. E. H. Davis, and Dr. Hartt gave his views on the subject at some length, after which a committee was appointed to take the matter practically in hand. Whether the thing will be a success or not remains to be seen; but Dr. Hartt is a man too arrogant in his assumption of superior knowledge, and too boastful of his extraordinary cures, to obtain the confidence and support of the thoughtful men of the profession.

The funeral services of the late Dr. Henry James Anderson, who died last October at Lahore, India, were held a short time since, at the Cathedral, where a large number of the most distinguished citizens were present to do honor to the memory of the deceased, and Cardinal McCloskey himself preached the funeral sermon. At the conclusion of the mass, the remains were taken to Fort Lee, New Jersey, where they were placed in the vault under the altar of the Church of the Madonna, which he was instrumental in building.

Dr. Anderson was born in this city, February 6, 1799. In 1818 he was graduated at Columbia College, and, after the usual course of study, received the degree of M.D. from the College of Physicians and Surgeons. For a few years he practised medicine, but also devoted himself to scientific and literary pursuits, and, when twenty-six years old, was appointed Professor of Mathematics in Columbia College. He was very successful as a teacher, and obtained great popularity among the students. At this period he was exceedingly fond of making journeys on foot, studying geology practically by the way, and sometimes reached the Adirondack wilderness in these expeditions. In 1843 he went to Europe, where he spent several years in the study of the languages and literature of the different countries. Afterwards he devoted six months to the hieroglyphics of Egypt, and in 1848 accepted the position of geologist to the United States Dead Sea Expedition, under command of Captain Lynch.

Always interested in astronomical studies, Dr. Anderson made early preparations for observing the last transit of Venus. He selected for the purpose a point one hundred and fifty miles north of Melbourne, and, being favored with excellent weather, like all those who watched it from Australia, was very successful in his observations. On his way back, by way of India, he made the ascent of one of the Himalayan mountains, but shortly after reaching Lahore he contracted a malignant diarrhoea, and died in that city on October 19. Dr. Anderson never wrote any extended work; but in his earlier years he was a frequent contributor to *The New York Quarterly Review* and to a mathematical journal published in Philadelphia, and in 1848 and '49 made geological reports on the Dead Sea Expedition.

Dr. Sayre has just made his sixtieth excision of the hip-joint, and has also made another subcutaneous section of the latissimus dorsi muscle, for the relief of rotary lateral curvature of the spine. For some months he has treated all the cases of Pott's disease that have come under his care with the plaster-of-Paris bandage, and is more impressed than ever with the advantages of the method. It does not seem to interfere in the slightest degree with respiration, and is really more effective than the most elaborate and expensive apparatus of the surgical-instrument maker.

The Commencement season is now in full flower. On the 15th, that of the Medical Department of the University of New York took place at the Academy of Music, when one hundred and thirty-three gentlemen received degrees. The Rev. Dr. Storrs, of Brooklyn, delivered the address, and the class valedictorian was George W. Chandler.

The Commencement exercises of Bellevue College were held yesterday afternoon, at the same place, the number of graduates being one hundred and fifty-nine. Prof. A. B. Crosby made the principal address, and Charles W. Cropper, of Illinois, the valedictory.

At the Commencement of the New York College of Dentistry, last night, degrees were conferred on twenty-three graduates; the address being by Prof. F. D. Weisse, M.D., and the valedictory pronounced by George M. Eddy, of the graduating class. The faculty prize, of a set of instruments, valued at \$100, was awarded to George H. Dunster, of Russia.

The annual election of officers of the "Association for the Advancement of the Medical Education of Women" resulted in the reelection of Dr. Mary Putnam Jacobi as president. Among the vice-presidents are Drs. William H. Thomson, Alfred Loomis, and Emily Blackwell; and of the various committees, Dr. E. Darwin Hudson is chairman of that on Hospital Instruction, and Dr. Isaac Adler of that on Education.

The report of St. Mary's Free Hospital for Children, for 1875, shows a year of very successful working. At its commencement there were 21 patients in the house, and at its close 25; and during the year 75 were admitted. Eight deaths occurred, and the following operations were performed: circumcision (1); canthoplasty (4); excision of hip-joint and removal of femur (1) [died]; excision of elbow-joint (1); hare-lip (1); necrosis of femur (1); necrosis of humerus (1); removal of os calcis (1); tenotomy (6).

From the character and number of the ladies and gentlemen having the matter in charge, the "Martha Washington Reception and Centennial Tea-Party," at the Academy of Music, to-night, in aid of the Floating Hospital Fund, promises to be the great social event of the season; and it is hoped that enough money will be made by it not only to pay the balance due on the hospital-boat built last year, but also to cover the expenses of running it during at least a portion of next summer.

PERTINAX.

## PROCEEDINGS OF SOCIETIES.

### PHILADELPHIA COUNTY MEDICAL SOCIETY.

Reported by FRANK WOODBURY, M.D.

THE VICE-PRESIDENT, DR. THOMAS DRYSDALE, in the chair.

CONVERSATIONAL meeting, held November 24, 1875.

After the paper of the evening was read by Dr. TURNBULL,\* the discussion of the subject was opened by Dr. TAYLOR, who inquired whether the lecturer had used hydrate of chloral to alleviate the pain in acute affections of the ear.

Dr. TURNBULL said that he had done so both alone and in combination with bromide of potassium, with good effect, when some reason existed why morphia should not be exhibited. The pain must be relieved in these cases, as it may of itself be sufficient to kill the patient; in many cases if you succeed in giving relief from suffering, and a few hours' sleep, the patient will derive substantial benefit from it.

Dr. FRANKLIN D. CASTLE said that his own observation agreed with the last speaker; he had seen cases where relief from pain was followed by marked amelioration of the symptoms.

Dr. M. O'HARA noticed that Dr. Turnbull recommended chloroform, but did not mention the administration of ether: he would ask if the lecturer considered that chloroform was to be preferred in these cases to any other anæsthetic. In view of the fact that ether is

\* See pp. 267-269, ante.

increasing in favor both here and in England, that it is safer, and that public opinion of late has denounced chloroform as dangerous, it would be better to use the safer agent if it would answer as well; as in case of accident from chloroform, a coroner's jury, perhaps, might not consider the physician free from blame.

Dr. TURNBULL stated that he referred to its use in young children, where he had employed it to a considerable extent, and never saw any bad effects.

Dr. ATKINSON inquired whether the lecturer had ever used bisulphide of carbon locally, which had been recommended for the relief of pain, especially where there is caries of the mastoid process. He would also ask what he preferred in the treatment of those ordinary cases of earache which, after hours of suffering, are sometimes followed by a slight discharge, showing inflammation. In his own practice he had found nothing to give such relief as wine of opium, with tincture of belladonna and a little sweet oil, instilled into the ear and retained by a small pledget of cotton-wool.

Dr. COLLINS.—I consider the paper just read to be instructive, and appreciate it; there is only one point that I would refer to: the lecturer recommended Clarke's douche, and mentioned some unpleasant effect from the use of Thudichum's tank, which I have used frequently. I think that the trouble referred to is due to using pure water, and that it may be avoided by the addition of a small amount of alkali or common salt to the water.

In regard to the alleviation of pain in affections of the ear, I do not consider that it is any more imperative here than in other acute diseases accompanied by pain, such as pleurisy, pneumonia, peritonitis, or rheumatism. Whether or not opium is the specific, I will not stop to discuss; but the pain attending ear-trouble is sometimes excruciating, and demands speedy relief, on account of the shock to the nervous system and the exhaustion produced by prolonged suffering.

In reference to anæsthetic agents, I have watched the course of public feeling on the subject of chloroform with wonder. I have given it in my experience largely, on any and all occasions, and have seen a few accidents, which I do not hesitate to attribute without exception to fault in administration or to some contra-indication on the part of the patient. I recall one case that I saw—a railroad injury requiring amputation—where the administration of chloroform was intrusted to a mere student. I noticed and called the operator's attention to the fact that no blood was flowing from the flap: we then found that the patient had been smothered by the chloroform, and needed air. The tongue was immediately drawn forward with a tenaculum, and artificial respiration for half an hour was required before the patient was resuscitated. The man

who gave the chloroform gave it too fast; he was too much engaged watching the operation to attend to his own business. The same accident may happen with ether by crowding the administration and cutting off the supply of air, so that the blood, deprived of oxygen, becomes so highly carbonized as to act as a narcotic poison on the brain. This is more likely to occur in practice from chloroform, because it is in its specific effects much stronger or more powerful than ether.

The hypodermic dose of morphia I have found in my experience to vary in the same way very greatly in individual cases. One-eighth of a grain may be considered as the average dose for an adult, but I have given a grain and a half every two hours without the slightest effect in one case, while in at least one other that I recall, one-eighth of a grain was followed by all the symptoms of acute opium-poisoning within fifteen minutes after its administration, and I was very glad at the end of six hours' exertion to be able to pronounce my patient out of danger.

If I were called to see a man with "Katzenjammer," as the Germans say, I would very likely begin with ether, to be on the safe side. I had a case with threatened convulsions, where Squibb's ether was given with no effect whatever. I then sent for chloroform, and gave it drop by drop, kept the patient, a lady, under its influence for twenty-four hours, when she awoke relieved of her pain and very grateful. She had been supported during this time by nourishing enemata. I have used chloroform and taken it myself. I do not hesitate; I fear nothing, provided I know how much is on the towel. Ether is followed by disagreeable results, such as fulness of the head, throbbing of the temples, and nausea, that chloroform is free from.

Dr. ALLIS.—In regard to the subject of chloroform, to which our attention has been called, I would like to say a few words. The first time I saw this anæsthetic administered to an infant was at Prof. Gross's clinic at Jefferson Medical College. Dr. Maury, then clinical chief, was administering it, and the neat manner in which it was done made a lasting impression upon my mind. He poured a few drops only on a single fold of a handkerchief, and holding it at a little distance from its face the child was easily influenced, the effect seeming almost magical. It is well known that children are very susceptible to anæsthetics, chloroform particularly; and I think that if the same care were exercised in giving it to adults as we naturally take in administering it to children, fewer deaths would result from its use.

I have used chloroform a great deal, and if it were safe it would be universally used in preference to ether. But as I would not be willing to take chloroform at the hands of the most experienced, so I do not think that I have a right to use it upon others. Whenever



I administer it for others I do not allow myself to take any part in the operation, and throughout the entire administration *I try to hear every breath*. I judge more of the patient's condition by his *breathing* than from his pulse. The latter I seldom concern myself about. I can say confidently, as to the quantity necessary, that I can completely influence a thousand females with a thousand drachms of chloroform, and a similar number of men at the rate of a drachm and a half each, and at the end of the experiment will have some chloroform left. I have notes of cases that I have influenced with half a drachm by measure. As to its danger, I emphasize the fact that it does not reside more in the chloroform than in the person who gives the chloroform. There are but few persons in the profession fitted to perform delicate operations upon the eye, ear, throat, or perineum; and I assert that *just as few* are qualified to give chloroform. Ether cannot kill as quickly. The history of chloroform-poisoning is, "*the patient struggled, and was dead.*" With chloroform they die suddenly, frequently before the operation is begun,—often due to carelessness of administration or to ignorance. Its administration requires an amount of *drilling, patience, caution, and courage* only to be attained by great experience, and medical students or hospital nurses should never be trusted with so important a duty. It is too dangerous for indiscriminate use in general practice, and I would not regret the passage of a law by the legislature of Pennsylvania restricting and regulating its use.

Dr. COLLINS.—I should object to prohibiting the use of chloroform by act of legislature, because I know that its danger is due in great measure to poor management, and it might as well forbid the use of a catling because some surgeon had performed an unsuccessful operation. The trouble in chloroform is in giving it too strongly. A few years ago I collected quite a number of cases of death from ether.

Dr. O'HARA.—I brought up the subject of chloroform this evening, because it is thought by many to be a dangerous anæsthetic. I remember a patient with myelitis to whom I gave quite a small hypodermic of morphia (one-eighth grain), when I was alarmed by the result. I thought he was gone from shock to the heart. On the other hand, I had a patient with sciatica, who bore continuously enormous doses of morphia and atropia, with little effect. They were poisonous doses, and the patient eventually wore himself well. I would not dare to give such doses to him now. The physical condition of our patients varies from time to time; and this should be considered in giving any anæsthetic. I cannot agree with some observers in the wholesale denunciation of the administration of chloroform; but a coroner's jury in Boston has recently decided that chloroform is dangerous

and its use to be condemned. I do not know any special reason why their opinion on a medical subject should be of any great value, but it is certain that if I had to attend what would be a medico-legal case I would only feel safe with ether, although I know that death may also be caused by ether. In this connection I recall a case that was ether-proof: all the ether given was powerless to affect him; it seemed to be eliminated as fast as it was exhibited.

Dr. TURNBULL.—In answer to Dr. Atkinson, I would say that bisulphide of carbon is one of the most disagreeable and disgusting articles that could be thought of, and I think that it is only good to use in cases that you do not wish to return to you. I applied it in one case, and never will again.

Now, in connection with the treatment of diseases of the ear in little children, I want to impress upon you, gentlemen, members of the Philadelphia County Medical Society, that some, if not most, of the cases of deafness, and even of deaf-mutism, in the community of to-day, have been caused by the neglect and carelessness of physicians. A child is suffering with earache. Does the physician, as a rule, take the child to the light and examine the parts, to see whether he has to deal with an abscess, a perforation or inflammation of the membrana tympani, disease of the internal ear or mastoid cells, or simply neuralgia? No: he writes a prescription for a little laudanum and sweet oil, with, perhaps, a little belladonna, and says to the mother, "Here, place this in the child's ear; that will make it all right." But, except in a few instances, it does not. Many cases have presented themselves at my clinic at the Howard Hospital, of chronic disease of the ear in young adults, where the tympanic membrane is entirely destroyed, the chain of bones gone, and the function of the ear forever lost. Why? I ask the mother, "How did this happen?" And I often hear the answer, "The child had an earache when she was little, and the doctor told me to put in some laudanum and sweet oil; but the ear has been discharging ever since." When the girl grows up and wants to get married, she thinks of the ear; she is ashamed of it, and wants to get it well. She comes to the clinic, and I examine the ear, and find nothing but the sclerosed, shining promontory to look at, and am obliged to tell her that it is too late to do anything except protect it from external influences or from affecting the brain. That this is not an exaggerated case I call Drs. Collins and Castle, and other gentlemen, who have had much aural practice, to witness. No physician of intelligence would prescribe for or treat a disease of any other accessible portion of the body without carefully examining it and making a diagnosis; and why should the ear be an exception? I have drummed this into the ears of physicians for nearly thirty years, and will continue

to do so as long as I am able. Every physician should carry a nest of two or three specula for the ear in his pocket or pocket-case, and, in every severe ear-case, look at the part before prescribing treatment. There is no difficulty about it. I call upon Dr. Allis, as an anatomist, to corroborate or correct the statement that the membrana tympani of an infant is relatively much larger than it is in the adult, and more easily seen.

In the treatment of neuralgia of the ear I more often apply a leech to the mastoid process, or at the base of the tragus, and warm fomentations, and give chloral and bromide of potassium internally, than anything else. If there is an abscess it must be opened. No single remedy or line of treatment is applicable to all cases.

Dr. ALLIS.—The membrana tympani of the child at birth is nearly as large as in the adult. The meatus, however, leading to it is small, and presents the only obstacle to its examination.

Dr. O'HARA.—I would like to inquire of Dr. Allis if deaths from chloroform are due to paralysis of the heart, or from other causes.

Dr. ALLIS.—Those who have investigated the subject report that there is a *great difference in the blood-pressure from the very first*. One reason why ether does not kill as rapidly as chloroform resides in the fact that, ounce for ounce, ether is not one-tenth as effective as chloroform, and hence cannot be given as fast: this is why so few are killed by the use of ether. I have watched the heart's action, and found it to be just as tumultuous under one as the other. Exactly how quickly chloroform kills, no one can tell: it seems to be all over in an instant. The general view is that it exerts a special paralyzing action on the heart.

Dr. DRYSDALE.—Is there with Dr. Allis's apparatus any danger in giving ether?

Dr. ALLIS.—It permits greater evaporation than a sponge or a towel, and is to a corresponding extent more effective, or more dangerous. I have seen alarming symptoms in the employment of ether, and I am far from endorsing the views of those who declare ether safe under all circumstances, and that "you cannot kill any one with ether." Some one has said that the anæsthetic principle is identical in the two. On this point I cannot speak positively.

Dr. TURNBULL.—I would like to ask Dr. Allis if he ever saw a death in an infant from the use of chloroform.

Dr. ALLIS.—One case is reported of death at twelve months, where six drops, followed by three more, are said to have done the work. The anæsthetic was administered on a towel. I have notes of seven deaths under eleven years of age, and of two others, one "a lad," the other "a boy," where the ages are not given. In early infancy we seldom *push* the anæsthetic. The struggles are easily overcome, and the

anæsthetic is given merely to obtund the sense of pain, not to relax the muscles.

The reason why I would not object to seeing restrictions placed upon the use of chloroform is, that in ether we have a valuable and much safer substitute; and I think it behooves us to consider well the use of an agent that has produced death at the hands of Simpson, Paget, Erichsen, and scores of others, and that, too, after years of experience with it.

Dr. DRYSDALE.—In what form and manner do you generally use the chloroform in the cases referred to?

Dr. TURNBULL.—Simply by pouring a few drops upon a towel, and holding it a short distance from the patient's mouth until he gets a little used to it, then crowding it a little, carefully watching the pulse and respiration, and seeing that a comparatively large quantity of atmospheric air is furnished at each inspiration.

Dr. DRYSDALE.—I would ask Dr. Turnbull if he has used chloroform topically in mild cases of neuralgia and inflammation of the tympanum, by means of cotton impregnated with it.

Dr. TURNBULL.—Yes, I have, with the piece wrapped in another layer of cotton, in order to prevent it from coming in contact with the auditory canal. I have also blown the vapor of chloroform, mixed with air, into the ear by means of a Politzer's bag. A mixture of belladonna, camphor, and morphine painted behind the ear is soothing; but it should be combined with internal treatment,—say, for an adult, a pill containing

℞ Morphine sulphat., gr.  $\frac{1}{2}$ ;  
Camphoræ, gr. j;  
Quinine sulph., gr. j;  
Ext. belladonnæ, gr.  $\frac{1}{2}$ .—M.

Ft. pil. p. r. n.

Dr. Carter, of St. Joseph's Hospital, London, in a recent work, recommends the substitution of *iron* for the belladonna, and gives for immediate relief the chloroform locally, or belladonna dissolved in glycerin.

I object to the use of oils, such as almond or olive, in the ear, as they have a tendency to leave a thin pellicle on the membrana tympani, or to induce a form of aspergillus or other fungus.

#### *Inversion of the uterus.*

Dr. FRANK WOODBURY desired to ask Dr. Atkinson, or any other gentleman of large obstetric experience, as to the relative frequency in practice of an accident of recent occurrence under his own observation, which appears to be generally spoken of by the books as a remote possibility rather than an active danger threatening improper management of the third stage of labor. In delivering the placenta, traction upon the cord is recommended by some writers, among whom perhaps the most familiar name is that of Cazeaux, but always with certain cautious and careful instructions. It is to be feared

that many who have used Cazeaux's work as a text-book remember his teaching to warrant the practice of dragging on the cord, but altogether forget the special directions as to how it should be done, if adopted at all. From this fact, and the possible grave results consequent upon the procedure, it would follow, although the temptation seems to be sometimes strong to pull, that dragging upon the umbilical cord should be finally abandoned and condemned as a true piece of "meddlesome midwifery." It is entirely unnecessary; for the placenta may either be allowed to remain until expelled by the natural efforts of the uterus, stimulated to contraction by its presence, or the womb may be encouraged to contract, and the placenta expelled by the manipulation lately known as Credé's method.

The case was primiparous, about thirty years of age, of good physique, and in fair social circumstances. Capricious and self-willed, she had been in labor about thirty-six hours, keeping her physician dancing attendance upon her whims, but, as far as she dared, disregarding his instructions. She had been all day in the second stage of labor, and the pains had almost died away, when she finally consented to the application of the forceps, but soon changed her mind, and positively refused to go any further without ether. The attending physician then called upon Dr. W. and invited him to give the anæsthetic. This done, the child was soon extracted, although with some difficulty, on account of its size; it weighed probably about twelve pounds. It was born asphyxiated, but probably not from the effect of the ether, because a small amount was found sufficient; and the mother was not at any time fully under its influence. The head had been impacted at the superior strait for about twenty-five hours, and from the long pressure right-sided facial palsy had been produced. The child lived only twenty-four hours after birth. After spending some time attending to the infant, the delivery of the placenta came next in order. Seated at the left side of the patient, who was lying across the bed, after having been delivered, in the dorsal position, Dr. W., with his right hand, followed up the now firmly-contracting uterus with gentle friction over the abdomen. The attending physician, in delivering the secundines, pulled rather firmly upon the umbilical cord, and was removing the placenta from the ostium vaginae, where it had just presented, when the uterus was missed from under the hand. The fact was immediately mentioned that speed was desirable in clearing the canal, as it was feared that contraction had ceased and concealed hemorrhage was in progress. The placenta removed, an unfamiliar body, "like a second placenta," was discovered occupying the vagina, situated about two inches from the vulva. Being requested to make an examination, Dr. W., with the right hand still on the

abdomen, proceeded, with two fingers of the left hand, to remove the anticipated clot and open the flood-gates. The substance encountered, however, was not a soft, friable clot, but a dense body, in whose surface were loculi, which were recognized with trepidation as the open mouths of sinuses. Being authorized to go ahead, without alarming the by-standers or unnecessarily attracting attention, the two fingers, kept in place, were joined by the other component parts of a hand, which then doubled into a fist, and made steady pressure upon the everted fundus until the circular fibres of the neck yielded and the organ was restored to its place, the fore-arm then being more than half buried in the patient's body. This was not done without giving some pain, or causing some struggles on the part of the half-etherized patient, but it was accomplished without a suspicion on the part of the non-medical attendants that anything unusual was happening. The uterus contracted well immediately afterwards, and, although some blood was lost, there were no signs of collapse. It is reported that the patient made a good recovery.

Dr. ATKINSON.—The accident is a very rare one, and the gentleman may practise a lifetime without seeing another case. I hope no member of this Society will ever attempt to deliver the placenta by pulling the cord; it should only be mentioned to be condemned. The operation known as Credé's method is now generally recommended; although it was not original with him, but was practised and taught by Dr. Washington L. Atlee as early as 1853.

### MISCELLANY.

A NEW MEDICAL SOCIETY.—Representatives of the medical profession from the counties of Blair, Huntingdon, Mifflin, and Perry met at Huntingdon, Pa., on the 4th of February, for the purpose of organizing the Medical Association of the Juniata Valley. The following officers were elected: President, Dr. Roan Clark. Vice-Presidents, Dr. John B. Ross, of Blair; Dr. D. P. Miller, of Huntingdon; Dr. J. I. Marks, of Mifflin; Dr. D. M. Crawford, of Juniata; Dr. O. H. Orris, of Perry. Recording Secretary, Dr. A. B. Brumbaugh. Corresponding Secretary, Dr. A. Rothrock. Treasurer, Dr. W. M. Finley.

A HAPPY COUNTRY.—Siberia is said to contain only fifty-five doctors to minister to the wants of about six millions of people spread over a country as large as Europe. This condition of primeval blessedness the Russian Government is about to disturb by establishing a university at Tomsk, with faculties of law and medicine only. A grant of between two and three hundred thousand dollars has been made to start the institution. If the Czar wants Siberia filled with doctors in a fortnight, he should adopt the American system, and

import one or two hundred of our ready-made colleges.

**NEW METHOD FOR THE ESTIMATION OF URIC ACID.**—The usual method of separating uric acid by hydrochloric acid being sometimes inapplicable, and not sufficiently exact, A. P. Fokker was induced to devise a new one, based upon the insolubility of acid urate of ammonia. It is itself not entirely free from error, but in all cases separates more uric acid than the old one. His process is the following: 100 cc. of urine are rendered strongly alkaline by sodium carbonate. After four to six hours the earthy phosphates are filtered off and washed with hot water. Filtrate and wash-water are then mixed with 10 cc. of saturated solution of ammonium chloride, and left without stirring. After from six to twelve hours, the liquid and the precipitate are removed to a small filter, which has been previously washed with one-tenth hydrochloric acid and weighed. When the fluid has run off, the tube of the funnel is fixed into the neck of a bottle by means of a tightly-fitting cork. The filter is now filled up to within half a centimetre of its edge with one-tenth hydrochloric acid, and left to stand some hours. The funnel is then removed from the cork, the fluid allowed to run off, and the sediment washed till it loses its acid reaction, then dried and weighed. According to the author, the previous separation of albumen may be dispensed with. A correction is, however, required, which consists in the addition of sixteen milligrammes (0.016 grm.) to the amount found for every 100 cc. of urine. The author finds that uric acid, when impure, is quite as soluble as when pure. By this method it is, of course, the impure colored uric acid which is estimated.—*New Remedies: Journ. Chem. Soc.; from Pflüger's Archiv f. Phys.*, vol. x. p. 153.

**CLINICAL TEACHING IN PARIS.**—Chairs are to be created for the clinical teaching of syphilis, diseases of the skin, ophthalmology, otology, mental diseases, and odontology, which will be established at the different general hospitals already in existence, and placed under the direct control of the faculty, which will have the right to appoint its own professors. The appointments will be for ten years, with the power of re-election, and the salary 5000 francs per annum.—*The Doctor*.

**IMPUDENCE.**—The proprietary medicine men have a bill before Congress to provide for the admission, duty free, of drugs and chemicals consumed by them, on account of the well-earned and well-deserved gratitude of their fellow-men.

**NINETY-TWO** British drug, chemical, medical-instrument, etc., firms have announced their intention of exhibiting at the Centennial.

**A LEPER-HOSPITAL**, with one hundred and fifty beds, is to be built in Bombay as a memorial of the visit of the Prince of Wales.

The dental degree in England is L.D.S.

## NOTES AND QUERIES.

TO THE EDITOR OF THE MEDICAL TIMES:

SIR,—Your championship of the use of the pronoun "I" instead of "we" in professional writing is exciting inquiry among the subscribers to your valuable journal as to the *casus belli*. Has the cause of good sense, honor, or courtesy been abused by the "we"-ites? Has any principle of English composition been violated? Has anything been lost by the "we"-ites' following tradition, which is as old as our literature? I think, on the whole, it is a little matter. If the writer's text is good, the pronoun need not attract attention; and if the matter is not good, it can be condemned on fairer ground. But cannot the custom be defended? You say it arises from self-love and morbid self-consciousness. It may with some; with others it is a matter of temperament, as much as the choice of the words which make up the general style of the writer. You say "I" is better. I contend the "we" is always better in a teacher who addresses his pupils as a guide: "we" go together; certain facts prove to "us," etc. At all events, your reviewer of "Browne's Medical Jurisprudence of Insanity," in your issue of February 5, has used an unjustifiable epithet in calling the custom "abominable." This is simply gross. The fault, if it be one, is at best venial, and should be discussed with something like appropriateness.

Yours,

Philada., Feb. 20, 1876.

SINTRAM.

\*If good English be "a little matter" to "Sintram," we are sorry for him. A custom which threatens to mar our language is, to our thinking, abominable, and not venial. Carelessness "in little matters" in language leads to carelessness in thinking. Hence it is not surprising that our correspondent has failed to perceive that "we" in the teacher, representing himself and class as a joint company, may be defensible, although "we" for "I" in a description of personal action is abominable. Certain facts prove to "us" "may be" all right, but for a man who has eaten his dinner by himself to say, "We ate our dinner by myself," is, we suppose, "a little matter."

### RUSH MEDICAL ASSOCIATION OF PHILADELPHIA.

At a meeting of the Rush Medical Association of Philadelphia, held February 7, 1876, at the northeast corner of Front and Huntingdon Streets, the following officers were elected for the ensuing year, viz., President, Dr. S. R. Knight; First Vice-President, Dr. W. H. Bennett; Second Vice-President, Dr. Wm. E. Kewer; Treasurer, Dr. S. R. Morris; Secretary, Dr. B. J. Rudderow. Signed, B. J. RUDDEROW, Secretary.

### OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 13, 1876, TO FEBRUARY 26, 1876, INCLUSIVE.

McKEE, J. C., SURGEON.—Assigned to duty as Attending Surgeon at these Headquarters. S. O. 15, Department of California, February 15, 1876.

STORROW, S. A., ASSISTANT-SURGEON.—Assigned to duty at the Presidio of San Francisco. S. O. 15, c. s., Department of California.

HARTSUFF, A., ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for an extension of five months. S. O. 17, Department of the Platte, February 11, 1876.

WILLIAMS, J. W., ASSISTANT-SURGEON.—Ordered before Army Medical Board, New York City, for examination for promotion; upon its completion to accompany the first detachment of recruits to Department of Dakota, and, until it is forwarded, assigned to temporary duty at Fort Columbus, N. Y. Harbor. S. O. 34, A. G. O., February 21, 1876.

WEISEL, D., ASSISTANT-SURGEON.—Assigned to duty as Post-Surgeon at McPherson Barracks, Atlanta, Ga. S. O. 24, Department of the South, February 16, 1876.

STEINMETZ, W. R., ASSISTANT-SURGEON.—Assigned to duty at Fort Wallace, Kansas. S. O. 28, Department of the Missouri, February 16, 1876.

DE LOFFRE, A. A., ASSISTANT-SURGEON.—Assigned to duty at camp near Cheyenne Agency, Indian Territory. S. O. 28, c. s., Department of the Missouri. (Now known as Fort Reno, Indian Ty.)

DELANEY, ALFRED, ASSISTANT-SURGEON.—Died, at McPherson Barracks, Atlanta, Ga., on February 14, 1876.